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EXAMINER

KUMAR, PANKAJ

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 06/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/430,501

Applicant(s)

HWANG ET AL.

Examiner

Pankaj Kumar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 October 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 16-37 is/are rejected.
- 7) ☒ Claim(s) 14 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**1. DETAILED ACTION**

**2. *Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

4. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 2,3,16,17,19,20, and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The terms "CM" and "JM" have not been defined in the claims. They should be defined at least once at the first use of the terms.

6. Since claim 3 is rejected, claims 4-10 are also rejected since they depend on claim 3.

7. Since claim 20 is rejected, claims 21 to 27 are also rejected.

8. Claims 7, 8,24,34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "INFOO" has not been defined in the claims. It should be defined at least once in the first use of the term.

9. Since claim 24 is rejected, claim 25 is also rejected.

10. Since claim 34 is rejected, claim 35 is also rejected.

**11. *Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

13. A person shall be entitled to a patent unless –

14. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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15. Claims 1-6, 9-13, 17-23, 26-33,36-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaku US pat. no 5625643.

16. Regarding claim 1. A method for modem carrier drop detection (Kaku col. 12: 2<sup>nd</sup> full paragraph) comprising the steps of: demodulating (Kaku fig. 7: 71A) a received signal (Kaku fig. 7: 24) to provide signal data; updating a carrier drop detection threshold (Kaku fig. 9: S1,S4 – threshold updated from S1 to S4; col. 4: fig. 9 illustrates determination section of fig. 7 which is a modem) based on the received signal responsive to a selected data pattern in the signal data (Kaku: "... Accordingly, with such a data pattern as shown in FIG. 11, the power (energy) obtained at the power calculation section 84 is reduced to zero. In such an instance, the output CDI (carrier) of the carrier detection section 79A may possibly change over to OFF (carrier absence) ... "); and detecting a carrier drop (Kaku fig. 9: S7) based on the carrier drop detection threshold (Kaku fig. 9: S4).

17. Regarding claim 2. A method according to Claim 1 wherein the modem uses a V.8 standard (inherent to use the latest standard so that one modem can communicate with another modem) during startup and the step of updating comprises the step of updating the carrier drop detection threshold (Kaku fig. 9: S1,S4 – threshold updated from S1 to S4) responsive to a selected data pattern in the signal data (Kaku: "... Accordingly, with such a data pattern as shown in FIG. 11, the power (energy) obtained at the power calculation section 84 is reduced to zero. In such an instance, the output CDI (carrier) of the carrier detection section 79A may possibly change over to OFF (carrier absence) ... ") corresponding to at least one of a CM signal (sent by call modem, received by answer modem) and a JM signal (sent by answer modem, received by call modem).

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18. Regarding claim 3. A method according to Claim 1 wherein the updating step further comprises the steps of: setting a flag (Kaku fig. 9: S1: "set counter to 0") to indicate receipt of at least one of a valid CM signal and a valid JM signal (Kaku fig. 9: S1: "energy level ... for CDI\_ON determination ... "); latching an output of a signal strength detector (Kaku fig. 9: S2 compares energy levels thus latching in inherent) responsive to setting of the flag (Kaku fig. 9: S1: "set counter to 0"), the signal strength detector being coupled to the received signal (Kaku fig. 7: 84a, 84b) and the output of the signal strength detector corresponding to a signal strength level of the received signal; and setting (Kaku sets the thresholds when developing the system) the carrier drop detection threshold (Kaku fig. 9: L2) to a value a predetermined amount below the latched output of the signal strength detector (Kaku fig. 9: the latched output of the signal strength detector is P; L2 has to be less than L1 and P since when  $P > L1$  (i.e.  $P > L1 > L2$ ) carrier is on; if  $L2 > P > L1$  then the carrier will immediately go from on to off and Kaku's system would not be functional) responsive to setting of the flag (Kaku fig. 9: S4: "set counter to predetermined count value").

19. Regarding claim 4. A method according to Claim 3 wherein the signal strength detector is a magnitude detector (Kaku fig. 7: 84a, 84b indicate squaring the absolute value which determines the magnitude).

20. Regarding claim 5. A method according to Claim 3 wherein the signal strength detector is an energy detector (Kaku fig. 9: S1: "energy").

21. Regarding claim 6. A method according to Claim 5 wherein the setting step further comprises the step of setting the carrier drop detection threshold (Kaku fig. 9: L2) to a level about 4 dB below (Lacking any criticality, changing the size or range of the prior art parts does

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not make the claimed invention patentable over that prior art. See *In re Rose*, 105 USPQ 237; In this instance Kaku teaches the range  $P > L1 > L2$  but does not specify a 4dB difference) the latched output of the energy detector (Kaku fig. 9: P) responsive to setting of the flag.

22. Regarding claim 9. A method according to Claim 3 wherein the step of setting a flag further comprises setting a predetermined memory location as the flag (Kaku: inherent since setting the counter involves setting a predetermined memory location).

23. Regarding claim 10. A method according to Claim 3 wherein the step of setting a flag further comprises the step of setting a latch output line to an active state (Kaku fig. 9: S3).

24. Regarding claim 11. A carrier drop detection system comprising: a demodulator that demodulates a received signal to provide signal data; a threshold circuit coupled to the demodulator that latches a carrier drop detection threshold at a level based on the received signal responsive to a selected data pattern in the signal data; and a carrier drop detection circuit coupled to the threshold circuit that detects a carrier drop based on the carrier drop detection threshold. (discussed above)

25. Regarding claim 12. A carrier drop detection system according to Claim 11 wherein the demodulator is a frequency shift keyed (FSK) demodulator. (Kaku: "Phase shift keying (PSK), orthogonal amplitude modulation (QAM) or some other modulation is used for a main signal while frequency shift keying (FSK) is used for a secondary signal. "; thus an FSK demodulator is inherent)

26. Regarding claim 13. A carrier drop detection system according to Claim 12 wherein the carrier drop detection circuit further comprises: an energy detector having an output corresponding to an energy level of the received signal, the output of the energy detector being

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latched responsive to the selected data pattern in the signal data; (uptil here discussed above) and a comparator (Kaku fig. 9: S2 and S5 are comparators) coupled to the output of the energy detector and to the carrier drop detection threshold.

27. Regarding claim 17. A carrier drop detection system for a V.8 standard modem startup sequence, the system comprising: a receiver circuit that receives a signal; a detector circuit coupled to the receiver circuit that detects at least one of a CM signal and a JM signal from the received signal; a signal strength detection circuit coupled to the receiver that outputs a received signal strength for the received signal; a threshold circuit coupled to the receiver circuit that latches a carrier drop detection threshold based on a current value of the received signal strength responsive to detection of at least one of the CM and the JM signal by the receiver circuit; and a comparator circuit coupled to the threshold circuit and the signal strength detection circuit that compares the received signal strength to the carrier drop detection threshold to detect a carrier drop (uptil here discussed above) corresponding to an end of the startup sequence (it is inherent for a carrier to drop at the end of any sequence and any sequence is considered a startup sequence).

28. Claims 18 to 23 and 26 to 27 have been discussed above in regards to other claims.

29. Claims 28 to 33 and 36 to 37 are rejected based on above reasoning and also since a claim should be considered as reciting a mathematical algorithm (in this instance a computer program) if it essentially recites, directly or indirectly, method of computing one or more numbers from different set of numbers by performing series of mathematical computations, with emphasis thus being placed on what the claimed method steps do rather than how the steps are performed (In re Logan, 20 USPQ2nd 1465)

**30. Allowable Subject Matter**

31. Claims 7,8,16,24,25,34,35 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

32. Claims 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

33. The following is a statement of reasons for the indication of allowable subject matter: The art of record does not suggest the respective claim combinations together and nor would the respective claim combinations be obvious with: “receives the INFOO signal”; following underlined portions:

34. Regarding claim 7. A method according to Claim 3 wherein the detecting a carrier drop step further comprises the step of detecting a carrier drop corresponding to a silence transmission (Kaku: low energy) terminating a V.8 standard phase 1 and wherein the detecting a carrier drop step is followed by the step of conditioning the modem to receive a phase 2 INFOO signal. (underlined portions not in Kaku)

35. Regarding claim 14, A carrier drop detection system according to Claim 13 wherein the threshold circuit further comprises a combiner (Kaku fig. 7: 84c) coupled to the output of the energy detector (Kaku fig. 7: 84a, 84b) and an offset (Kaku fig. 9: “-1” in S1) that outputs the carrier drop detection threshold as the latched output of the energy detector reduced by the offset (underlined portion not in Kaku).



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36. Regarding claim 15, A carrier drop detection system according to Claim 13 wherein the threshold circuit further comprises a multiplier coupled to the output of the energy detector and a coefficient that outputs the carrier drop detection threshold as the latched output of the energy detector multiplied by the coefficient (underlined portions not in Kaku).

37. Claims 24, 25, 34, and 35 are discussed in regards to the claims above.

**38. Conclusion**

39. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (703) 305-0194. The examiner can normally be reached on about 9:00 AM to 7:30 PM Monday through Thursday.

40. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham can be reached on (703) 305-4378. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.


41. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

42.

43.

44. PK

45. June 26, 2002

  
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